

In the Claims:

Claims 1 – 86 (Canceled).

87. (Currently Amended) A method of regulating an activity of a SMAD protein in a cell, the method comprising contacting the cell with an agent capable of diminishing or abrogating ~~modulating~~ an expression and/or an activity of TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11) in the cell, thereby regulating the activity of the SMAD protein in the cell.

88. (Cancelled)

89. (Cancelled)

90. (Currently Amended) The method of claim 87, wherein said agent comprises a single-stranded or double-stranded oligonucleotide which is at least 12 nucleotides in length and is specifically hybridizable with ~~SEQ ID NO: 1 and/or 2~~ said TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11).

91. (Cancelled)

92. (Currently Amended) The method of claim 87 wherein said activity of TAK1 is a kinase activity and/or an interaction of TAK1 with an MH2 domain of the SMAD protein.

93. (Cancelled)

94. (Currently Amended) A method of regulating osteogenesis and/or bone repair in a subject in need thereof, the method comprising contacting a cell with osteogenic potential with an agent capable of modulating an expression and/or an activity of TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11) in the cell, wherein:

(i) said cell is located in the subject; and/or

- (ii) said contacting is effected *in-vitro*, thereby generating a treated cell, and the method further comprises the step of administering said treated cell to the subject, thereby regulating osteogenesis in the subject.

95. (Currently Amended) The method of claim 94, wherein said regulating osteogenesis and/or bone repair is stimulating or enhancing osteogenesis and/or bone repair, and whereas said modulating said expression and/or said activity of TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11) is diminishing or abrogating said expression and/or said activity of TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11).

96. (Cancelled)

97. (Currently Amended) The method of claim 94, wherein said agent comprises a single-stranded or double-stranded oligonucleotide which is at least 12 nucleotides in length and is specifically hybridizable with ~~SEQ ID NO: 1 and/or 2~~ said TAK1 (Genbank Accession number: NM_145331, SEQ ID NO: 11).

98. (Cancelled)

99. (Previously Presented) The method of claim 94, wherein said cell with osteogenic potential is selected from the group consisting of a mesenchymal stem cell, a progenitor cell, an osteoblast and a cell capable of differentiating into an osteoblast.

100. (Previously Presented) The method of claim 94, wherein said cell with osteogenic potential is located in the subject at a site of inflammation, and/or wherein said administering said cell is effected by administering said cell to the subject at a site of inflammation.

101. (Previously Presented) The method of claim 94, wherein the subject suffers from a disease selected from the group consisting of inflammation-mediated bone loss, periodontal disease, osteoarthritis, Kohler's bone disease, rheumatoid arthritis and osteoporosis.

102. (Previously Presented) The method of claim 94, wherein said activity of TAK1 is a kinase activity and/or an interaction of TAK1 with an MH2 domain of a SMAD protein.

103. (Cancelled)

104. (Previously Presented) The method of claim 94, wherein said cell with osteogenic potential is located at a site of lung injury and/or persistent infection in the subject.

105-111. (Cancelled)

112.(New) The method of claim 87, wherein said agent is set forth in SEQ ID NO: 3.

113.(New) The method of claim 94, wherein said agent is set forth in SEQ ID NO: 3.